

REMARKS

Erroneously Issued Office Action

On October 17, 2006, the Office issued a final action in this case. Based on information provided to Applicant during a telephone call on October 19, 2006, between Applicant's attorney, Derek C. Stettner, and Examiner Tran, the Office was confused by a submission made by the Applicant on July 20, 2006. The Office mistakenly considered the July 20th submission as a response to the June 30, 2006, Office action. In fact, the July 20th submission was and is an interview summary, not a response to the June 30th Office action.

During the October 19th call, the Examiner recognized the error that occurred and indicated that she would withdraw the action issued on October 17th.

Status of Application

As a consequence of the June 30 action, Claims 1, 9, 12, 27, 31, 32, 34-40, and 45-53 are pending. Claims 36 and 37 are allowed and claims 35, 40, 46, and 47 are objected to. The Office has indicated that the objected claims contain allowable subject matter. Claims 1, 9, 12, 27, 31, 32, 34, 38, 39, 45, and 48-53 are rejected as claiming unpatentable subject matter.

Claim Objections and Amendments to the Claims

Claim 46 is objected to because it recites a "second fluid cooling system." Claim 46 has been amended to overcome this rejection. Therefore, Claim 46 and dependent Claim 47 are allowable.

The claims have been amended such that they now all recite a "UV lamp" or similar structure. Additional minor amendments have been made to Claim 9.

Claim Rejections – 35 U.S.C. § 103

A. Summary

Claims 1, 9, 12, 27, 31, 34, 39, 48, and 50-51 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 63062738, issued to Nagasaka, in view of an article entitled "New Cold-Curing High Performance UV System" authored by Jackson, and U.S. Patent No. 6,616,355, issued to Cleary.

As will be explained in greater detail below, the Section 103 rejection of the claims should be rescinded at least because:

- Nasaska teaches away from mounting a lamp on a print head carriage;

- there is no reason to use cold UV in the Nagasaka printer because the printer uses what appears to be a low output lamp to cure ink that is printed upon substrates in which thermal deformation appears to be of no concern; and
- there is no reason to substitute a vacuum plate for the drum and substrate holding mechanism used in the Nagasaka printer.

B. Detailed Analysis

In summary, the Office asserts that Nagasaka discloses a substrate supporting plane; an ink jet print head on a carriage; moving a print head carriage; jetting ink from the print head onto a substrate; and at least one UV curing head on the carriage sufficiently close to the ink jet print head, where the UV curing head is configured to emit sufficient UV energy to cure the ink. The Office also asserts that Nagasaka also discloses two UV curing heads – one leading and one trailing and a controller to activate the UV curing heads. However, the Office indicates that Nagasaka fails to teach cold UV. The Office asserts that Jackson teaches cold UV and that it would have been obvious to combine Jackson and Nagasaka to improve product quality. Finally, the Office indicates that Cleary teaches a vacuum source and that it would have been obvious to apply a vacuum as taught by Cleary to prevent the substrate from falling off the platen/support member.

With respect to Nagasaka, an English language translation of this reference is attached hereto. Upon review of the translation, the following becomes apparent. The alleged “substrate supporting plane” is in reality a roll or drum (marked with reference numeral 2 in Figure 1 of Nagasaka.). Thus, it does not appear that Nagasaka discloses any supporting plane, and certainly not a flat support or surface. The drum 2 is used to hold thin sheets of paper (which would generally not be substrates that have a tendency to deform when heated, although if sufficient heat is applied they will curl and ignite). “A constant distance between the paper 1 and the print head 5 is maintained by a paper holder 6 and a guide shaft 12.” Page 3 of the English Translation of Nagasaka. Nagasaka discloses a UV light source unit 11 that generates UV light, and this UV light is transmitted through optical fibers to the left and right sides of the print head. *Id.* Objectives of the invention disclosed in Nagasaka “are to cure a UV curable ink in a sufficiently short time, even using a UV lamp of **low power, thereby reducing power consumption**; to reduce the overall size of a printer; and to broaden a printing area regardless of the size of the UV lamp.” Page 2 of the English Translation of Nagasaka. In the Prior Art section of the reference, Nagasaka indicates that

it is conventional to use “UV light from a UV lamp that is provided in parallel relation to a platen However, . . . a lamp used in this conventional technique uses a lot of electric power. . . . Therefore, . . . the UV lamp is not suitable for use in a printer having a broad range of printing areas.” *Id.* The UV source and fiber optic assembly described above are used to solve the problems identified by Nagasaka with respect to UV lamps. **In particular, it should be noted that a UV lamp of low power can be used because the fiber optic assembly is used to concentrate or converge the light on a small area.**

Thus, Nagasaka does not teach mounting UV lamps on a print head carriage and certainly teaches away from mounting a UV lamp in parallel relation to a platen. In addition, since Nagasaka is teaching the use of low power or low output lamps mounted off the print head carriage and concentrating or converging that light through fiber optics, Nagasaka does not teach, for example, “providing at least one cold UV curing assembly **on the carriage** oriented to direct UV energy onto the surface of the substrate sufficiently close to where the ink is being jetted onto the surface to substantially cure dots of the jetted ink on the surface” because the assembly in Nagasaka, particularly the UV source unit 11, is mounted, at least in part, off of the print head.

The Office asserts that it would have been obvious to modify the Nagasaka printer to use cold UV as disclosed in Jackson to “improve product quality.” The Office has asserted improvement of product quality as a basis for its obviousness rejections in the past and the Applicant has noted that such a sweeping and general motivation such as “improving quality” could be applied to almost any situation as almost no rational person enjoys things that are of “poorer quality.” Thus, the Office provides no legitimate motivation for combining the references.

More importantly, the appropriate inquiry with respect to obviousness is why would someone of ordinary skill in the art modify the Nagasaka printer to use cold UV? As noted in previous responses, Jackson, in summary, establishes that cold UV was known. However, as noted above, Nagasaka uses a low power lamp which produces a relatively low amount of UV energy and heat. The lamp itself is not mounted on the print head, and the UV light from the lamp is impinged on a substrate (namely paper) in which thermal deformation appears to be of no concern. In fact, there is nothing in Nagasaka that indicates that substrate deformation is a problem that needs to be corrected. Thus, combining cold UV with the Nagasaka reference is not necessary (the Nagasaka printer appears to operate suitably for its intended use and its low output is unlikely to generate heat that needs to be removed). Further, such a combination does not provide any benefit such as

reducing substrate deformation, as there does not appear to be any deformation problems that exist in the Nagasaka printer in the form described in the reference. Therefore, there is no reason to combine the teachings of the references or modify the Nagasaka reference.

The Office also asserts that it would have been obvious to apply a vacuum as taught by Cleary to the substrate to help maintain the distance between the substrate and the print head and prevent the substrate from falling off the platen. However, there is no need to use a vacuum in the Nagasaka printer. Nagasaka already has a mechanism to maintain paper sheets in an appropriate location. As noted above, the Nagasaka printer prints on paper that is positioned on a roll or drum (**not** a platen). As also noted above, a “constant distance between the paper 1 and the print head 5 is maintained by a paper holder 6 and a guide shaft 12.” So, Nagasaka already has a suitable mechanism for holding the paper or substrate in position and there is nothing in Cleary or Nagasaka that would suggest that adding vacuum to a drum or replacing the drum/paper-holder/guide-shaft assembly of Nagasaka with a vacuum platen would keep the paper in position better than the components already used to accomplish this purpose or improve any other aspect of the Nagasaka printer. Only through hindsight using the Applicant’s disclosure as a guide can one reach the conclusion that Nagasaka should be modified.

With respect to the Cleary reference (or ’355 patent) the Applicant also notes that it is completely silent on the placement of UV lamps on a print head carriage or problems associated with curing UV ink. The ’355 patent mentions “solvent pigment inks, UV resistant inks, or water inks,” col. 6, line 7, none of which are UV curable inks. Instead of relating to problems with UV curable inks, the ’355 patent is directed to sensing the thickness of a substrate and adjusting the distance between a substrate and a print head. This is done so that the printer can handle different types of substrates which are likely to have different thicknesses. The adjustment in print head-to-substrate distance is based on a measurement made by thickness roller 20 at a point that is prior to the substrate reaching the print head (see Figs. 1 and 2A). There is no discussion whatsoever about a change in substrate thickness or change in the distance between the substrate and the print head that might occur due to thermal deformation.

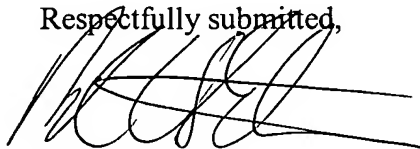
As the Office knows, it is impermissible to use an inventor’s disclosure as a road map for selecting and combining prior art disclosures. *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546, (Fed. Cir. 1998) (“Determination of obviousness can not be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention.”).

Instead, the invention must be viewed in the state of the art that existed at the time the invention was made. *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138 (Fed. Cir. 1985). In addition, a proper finding of obviousness requires that the prior art must itself suggest the desirability of a new combination. *Richdel Division of Garden America Corp. v. Aqua-Trol Corp.*, 681 F. Supp. 141, 145 (E. Dist. N.Y. 1988). In its attempt to combine Nagasaka, Jackson, and Cleary, the Office has used the Applicant's disclosure as a roadmap to pick and chose disparate features from the prior art and combine them. The Office picks one feature from the Cleary patent and ignores its other teachings. And as noted above, the Office also uses the Applicant's disclosure as a map to modify the Nagasaka printer to remove its drum/paper-holder/guide-shaft assembly and replace it with a vacuum platen. This type of analysis is impermissible under the relevant law.

Therefore, for all the reasons noted above, the combination of Nagasaka, Jackson, and Cleary does not teach or suggest the claimed subject matter. Accordingly, claims 1, 9, 12, 27, 31, 34, 39, 48, and 50-51 should be allowed. The rejections of the remaining claims are all based on the combination of Nagasaka, Jackson, and Cleary and one or more other references. As a consequence, these rejections fail for the same reasons discussed. Therefore, Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Applicant respectfully asks the Examiner to telephone the attorneys of record as soon as the Office has reached a decision regarding whether to allow the claims or issue a final rejection. Applicant reserves the right to supplement this filing with additional arguments and evidence.

Respectfully submitted,



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Attachment: English Translation of Nagaska Reference

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